

Erice workshop--materials summary

- Report chapters/writing assignments
- Key issues from magnet discussions
- New materials status
- New targets for materials R&D
- Coordination of ITER and HEP programs

New materials status and prospects

- Bi-2212
- MgB₂
- Nb₃Al

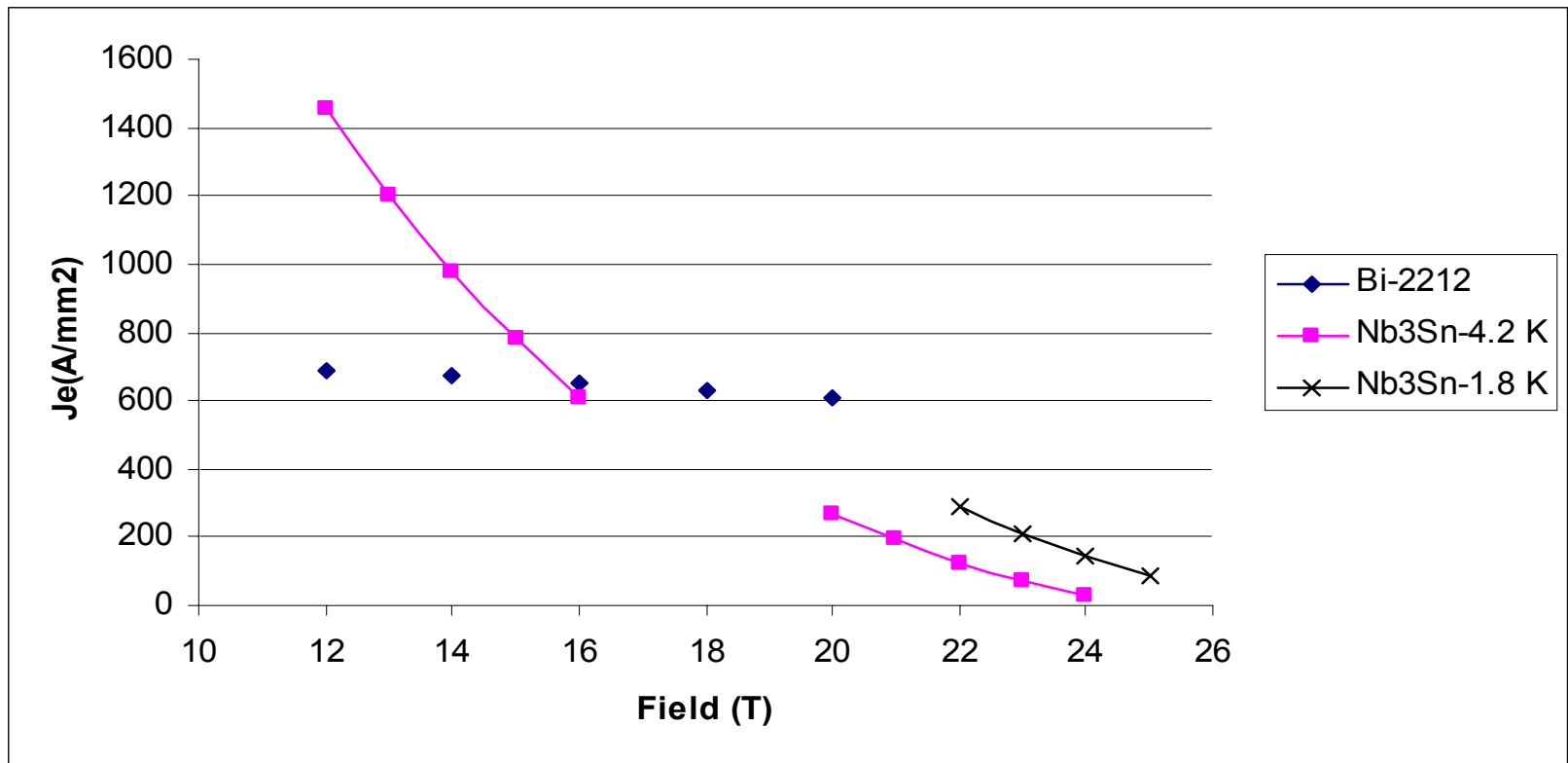
Chapter writing assignments

- Magnet requirements for higher performance/lower cost superconductors--B.Strauss/R. Scanlan
- New materials status and prospects
 - Bi-2212 A. Ghosh
 - MgB2 R. Flukiger
 - Nb3Al R. Scanlan
- Internal tin process Nb3Sn--S. Hong
- Bronze process Nb3Sn--R. Flukiger
- Coordination of ITER and HEP Nb3Sn programs--E. Salpietro/R.Scanlan

1.8 K operation extends Nb₃Sn range to higher fields

Need 1.8 K(2.2K) J_c data in 16-20 T field range

Proposal: reduce Cu to 40%; increase I_c by 20 %



Main emphasis for HEP--reduce D_{eff}

- Increase number of subelements (OST, OKAS, Supergenics)
- Use fins to subdivide subelements (OST, OKAS, Supergenics)
- PIT conductor fabrication (SMI, Supercon)

All three approaches can (in principle) produce $D_{\text{eff}} = 40$ microns, with J_c near 3000 A/mm². $D_{\text{eff}} = 20$ microns may be possible, but it is a big step, requiring more R&D

Another method to reduce magnetization at low fields--reduce low field J_c

Nb₃Sn for ITER and HEP

- Many common issues
 - J_c vs strain behavior
 - Radiation damage limits for insulation(and conductor)
 - Scale up of production capacity (should reduce costs for both programs)
- Conductor programs should be complementary and coordinated